

REMARKS

Claims 1 to 10 were rejected under 35 U.S.C. §112, first paragraph as failing to comply with the written description requirement. Claims 1 to 10 were rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 2, 7 and 9 were rejected under 35 U.S.C. §102(b) as being anticipated by Goebel et al. (US 6,838,062) and in view of Vartanian et al. (US 4,943,493). Claims 3 to 6 and 10 were rejected under 35 U.S.C. §103(a) as being unpatentable over Goebel et al. (US 6,838,062) and in view of Vartanian et al. (US 4,943,493) and further in view of Chludzinski et al. (US 4,473,622). Claims 1 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hwang et al. (US 4,522,894) and in view of Vartanian (US 4,943,493).

Reconsideration of the application based on the following is respectfully requested

Rejections under 35 U.S.C. §112

Claims 1 to 10 were rejected under 35 U.S.C. §112, first paragraph as failing to comply with the written description requirement. Claims 1 to 10 were rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Paragraph [0035] of the specification discloses “the hot gas of start-up burner 20 of conducted out of housing 2 as exhaust gas 19.” Paragraph [0036] of the specification discloses “[t]he hot gas flow of start-up burner 20 has its temperature regulated using metered supply of bypass air...”. Paragraph [0037] discloses a “mixing zone 28, bypass air 26 is mixed as homogenously as possible with the hot gas in order to exit as temperature-regulated hot gas flow 20 and heat the reactor system. The temperature is regulated through appropriate metering of supplied bypass air 26 and, if necessary, additionally through suitable metering of air 32 and fuel 34 (hydrocarbon), which are supplied to burner 22.”

Claim 1 recites “a temperature-regulated start-up burner including a burner unit configured to combust the hydrocarbon or hydrocarbon derivative with air so as to heat at least one of the mixture formation chamber and the autothermal reactor to a respective operating temperature, the start-up burner being configured to meter an air supply to a mixing zone where air of the air supply is mixed with hot gas coming out of the burner unit so as to regulate a

temperature of hot gas coming out of the start-up burner to a value near or below a deterioration temperature of the catalyst material, before the hot gas contacts the at least one of the mixture formation chamber and the autothermal reactor.”

The start-up burner in the preferred embodiment is clearly burner 20, while the burner unit is burner 22. Mixing of the air supply occurs in mixing zone 28, via for example bypass air 26, which can be metered, as described clearly in [0035].

Withdrawal of the rejections under 35 U.S.C. §112, first paragraph and 35 U.S.C. §112, second paragraph to claims 1 to 10 is respectfully requested.

Rejection under 35 U.S.C. §102(b)

Claims 1, 2, 7 and 9 were rejected under 35 U.S.C. §102(b) as being anticipated by Goebel et al. (US 6,838,062) and in view of Vartanian et al. (US 4,943,493).

First, the rejection clearly should be under 35 U.S.C. §103.

Second, in Goebel, inlet 40 clearly is not a mixing zone, and air supply 28 is not mixed with hot gas coming out of the burner unit as claimed, but rather enters into the burner 12. See Goebel, Fig. 1 for example. Neither Goebel nor Vartanian show “a mixing zone where air of the air supply is mixed with hot gas coming out of the burner unit so as to regulate a temperature of hot gas coming out of the start-up burner to a value near or below a deterioration temperature of the catalyst material, before the hot gas contacts the at least one of the mixture formation chamber and the autothermal reactor.”

Withdrawal of this rejection to claims 1, 2, 7 and 9 is respectfully requested.

Rejections under 35 U.S.C. §103(a)

Claims 3 to 6 and 10 were rejected under 35 U.S.C. §103(a) as being unpatentable over Goebel et al. (US 6,838,062) and in view of Vartanian et al. (US 4,943,493) and further in view of Chludzinski et al. (US 4,473,622). Claims 1 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hwang et al. (US 4,522,894) and in view of Vartanian (US 4,943,493).

Goebel describes a fuel processor including a burner 12. See Abstract and Fig. 1. As noted by the Examiner (see Office Action at page 4, lines 6 to 7), Goebel fails to explicitly teach a temperature regulated start-up burner configured to meter air.

Vartanian describes a fuel cell power plant in which an air stream is controlled by a valve 36 to provide an oxidant stream 28 for burning in a burner 20. See col. 2, lines 23 to 33, and the Figure.

Hwang describes a fuel cell in which air is diverted via a line 22 to provide combustion air to a burner 24. See col. 17, lines 41 to 43, and Fig. 2. As noted by the Examiner (see Office Action at page 7, lines 16 to 17), Hwang fails to explicitly teach a temperature regulated start-up burner configured to meter air.

Claim 1 recites a “start-up burner being configured to meter an air supply to a mixing zone where air of the air supply is mixed with hot gas coming out of the burner unit so as to regulate a temperature of hot gas coming out of the start-up burner to a value near or below a deterioration temperature of the catalyst material, before the hot gas contacts the at least one of the mixture formation chamber and the autothermal reactor.”

It is respectfully submitted that none of the cited references teaches or suggests metering an air supply to a mixing zone of a start-up burner where the air is mixed with hot gas coming out of the burner unit so as to regulate a temperature of hot gas coming out of the start-up burner, as recited in claim 1. Inlet 40 of Goebel is not part of a burner. As noted above and by the Examiner, neither Goebel or Hwang explicitly teaches a temperature regulated start-up burner configured to meter air. Nor does Chludzinski. Feed 10 of Hwang is not hot gas coming out of the burner unit – this is gas 58. Rather, feed 10 bypasses burner 24. See Hwang, col. 17, lines 31 to 37, and Fig. 2. Regarding Vartanian, this reference also does not teach the above-recited feature of claim 1. In contrast, Vartanian controls an air stream to provide an oxidant stream 28 for burning in a burner 20. See Vartanian, col. 2, lines 23 to 33, and the Figure. An air supply is not metered to a mixing zone where the air is mixed with hot gas coming out of the burner unit, as recited in claim 1. Because all of Goebel, Hwang, Chludzinski and Vartanian are missing at least the above-recited feature of independent claim 1, it is respectfully submitted that any combination of these references, to the extent proper, could not render claim 1 or any of its dependent claims obvious.

Withdrawal of the rejections under 35 U.S.C. §103(a) thus is respectfully requested.

CONCLUSION

The present application is respectfully submitted as being in condition for allowance and applicants respectfully request such action.

Respectfully submitted,

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